



**Background.** The Joint Interoperability Test Command (JITC) follows the processes outlined in CJCSI 6212.01 to perform its joint information interoperability test and certification mission. This mission includes the following efforts:

- Review of Mission Need Statements (MNSs), Capstone Requirements Documents (CRDs), Operational Requirements Documents (ORD), and C4I Support Plans (C4ISPs).
- Review of program managers' test plans, including T&E Master Plans (TEMPs).
- Evaluate information interoperability of National Security Systems (NSSs) and Information Technology (IT) systems (e.g., C4I systems and Automated Information Systems (AISs)).
- Perform Standards Conformance Certification.
- Perform Joint Interoperability Test Certification and re-certification.
- Assist in the resolution of life-cycle support interoperability issues.

The JITC encourages close coordination with the NSS/IT system program manager and system users throughout all phases of acquisition. Our objective is to get involved early in the acquisition cycle and provide advice to the system developer so that systems are "born joint." This objective is much preferred over post-deployment workarounds and additional interfacing devices that add complexity and uncertainty to the Warfighters' systems and networks.

**Process.** A flow diagram of the JITC System Life-Cycle Certification Process is provided at Figure 1. The JITC supports requirements documents generation, system development, system evaluation, fielding decisions, and deployment to provide the Warfighter with joint interoperability knowledge and expertise. During each phase of the process, the JITC assists in the development of systems which will interoperate together effectively and efficiently in the joint battlespace. The JITC can also tailor the test programs of non-traditional acquisitions to meet certification testing requirements.

**Mission Need Statement (MNS)/Capstone Requirements Document (CRD).** MNSs are normally received early in a program and are very general in nature with high-level interoperability requirements. CRDs provide the overarching view for Family-of-Systems (FoS)/Systems-of-Systems (SoS). The JITC reviews MNSs/CRDs to determine interoperability requirements with external systems, ensure that identified standards are consistent with the Joint Technical Architecture (JTA), and, if required, that the proposed system can interoperate with Joint, Combined, Coalition, and US components. MNSs and CRDs are provided to the JITC from DISA via the Joint C4I Program Assessment Tool (JCPAT). The purpose of the JCPAT database is to track all requirements documents received by DISA as prescribed in CJCSI 3170.01 and 6212.01. DISA receives documents from the Joint Staff and submits them to other activities via the JCPAT, and maintains an archive of the documents and associated review comments. The JCPAT is an invaluable tool for tracking the status of system requirements documentation, as well as being a valuable information source for the JITC's web-based System Tracking Program (STP).



**Operational Requirements Document (ORD).** The ORD is prepared and updated by the system proponent at key phases of the acquisition process. Of primary consideration to JITC are the interoperability requirements defined by CJCSI 3170.01, Requirements Generation System. For interoperability, CJCSI 3170.01 calls for Interoperability Key Performance Parameters (I-KPPs) and Information Exchange Requirements (IERs), besides defining the basic format for MNSs, CRDs, and ORDs. JITC must ensure that these requirements, especially external interfaces to joint systems, are adequately addressed. I-KPPs must be derived from the top-level IERs (basically, the interoperability interfaces); IERs must include all of the mandatory fields (e.g., event, sending/receiving nodes, type [voice, data, video], and timeliness) and any appropriate optional information (e.g., expected frequency of requests for periodic information such as radar track updates). System design must also conform to the appropriate Joint Architectures, such as the Joint Operational Architecture (JOA) and Joint Technical Architecture (JTA) and standards profiles. Review of these items is critical to the success of both the system and testing, as information at the operational level is eventually expanded and mapped into technical views that form the basis of interoperability T&E and certification. An essential review criterion is that requirements are testable and measurable. Increased accuracy and detail in specifying the interoperability requirements in the ORD are necessary as the system acquisition progresses. Detail to be expected includes standards profiles and specific messaging standards, such as U.S. Message Text Format (USMTF) and Tactical Digital Information Link (TADIL). While interoperability requirements are certified by the Joint Staff, JITC input to the definition process is important to ensure that the T&E mission and interoperability test certification is successful.

**C4I Support Plan (C4ISP).** The C4ISP provides a mechanism to identify and resolve implementation issues related to an acquisition program's command, control, communications, computers, and intelligence, surveillance, reconnaissance (C4ISR) infrastructure support and system interface requirements. It identifies C4ISR needs, dependencies, and interfaces for programs in all acquisition categories, focusing attention on interoperability, supportability, and sufficiency concerns. The C4ISP describes system dependencies and interfaces in sufficient detail to enable test planning for interoperability key performance parameters (KPPs) and information exchange requirements (IERs). Certification of supportability defined in C4ISPs is likewise a Joint Staff responsibility; however, C4ISPs will play an increasingly important role in JITC business as more programs adopt the new documentation requirements. C4ISPs contain the most detailed view of IERs, and identify what is required from interfacing systems and the supporting communications infrastructures – all of which are items that play a critical part in evaluating interoperability.

**Test and Evaluation Master Plan (TEMP).** JITC support activity increases during TEMP development. The TEMP addresses the required interfaces for the system and also indicates the scope and manner in which these requirements are to be examined during the testing process. The JITC TEMP review includes adequacy of technical content and planning for standards conformance testing and interoperability testing, including resources and scheduling. This review ensures the efficient use of resources and identifies potential scheduling



conflicts. JITC participates in the Test Integration Working Group (TIWG), Test Planning Working Group (TPWG), or other working group forums in developing or revising the interoperability testing aspects of the TEMP. The program manager should plan and allocate funds to permit JITC participation in certification testing, as required.

**System Tracking Program (STP).** Per CJCSI 6212.01, JITC maintains a database to track the interoperability and conformance status of programs and systems. Besides satisfying the Joint Staff requirements for tracking certification status, the STP serves to record programs/systems that have created requirements documents, as well as managing JITC's testing schedule. The web-based STP is populated with entire life-cycle information to cover support from initial concept phases to the point where a system is no longer in the inventory. The tracking process starts when initial requirements documents are generated, includes any Interim Authority to Operate (IATO), monitors test scheduling, resources, execution, and reporting events, and culminates with the certification status and recertification notifications. Program Managers and organizations with a requirement for NSS/IT system interoperability certification or other test support should contact the JITC Plans & Policy Branch or their JITC Action Officer for assistance with entering their testing requirements in the STP. STP entries should be made as early in the acquisition process as possible, and updated as testing and evaluation progresses.

**Developmental Test (DT).** The JITC Action Officer will work with the program management office to determine if the system conforms to the JTA or other applicable standards. Standards conformance testing of a system is performed under the direction of the Program Manager, usually during DT, by one of their contractors or the JITC. Because the JITC does not



necessarily conduct all of the testing, JITC must examine other scheduled tests to identify interoperability and conformance data that are available from these sources and what changes in testing may be necessary to satisfy JITC needs. Based on the results of such testing, the JITC will certify that applicable standards and standards profiles have been met. This certification can be expressed in a standards conformance certification letter or listed on a JITC conformance register. If appropriate, component and system

interoperability assessments can be used to increase the level of confidence that the system will interoperate when fielded.

**Operational Test (OT).** The JITC Action Officer works with the Operational Test Agency (OTA) to ensure adequate interoperability testing is accomplished and suitable data is provided to the JITC for evaluation. Interoperability testing is normally performed in conjunction with OT whenever possible to conserve resources. However, interoperability evaluation will be conducted throughout the life cycle of systems. JITC can also assist the OTA to obtain the participation of other Services and Agencies required for joint certification. The JITC will report on the

information interoperability, and provide the expected operational impact of any interoperability problems. For DISA (and other designated) programs, JITC may also be the OTA. A related function provided by JITC – required by the DoD 5000 series policy – is input into the OT Readiness Review (OTRR). Based on developmental testing and standards conformance results, adequacy of interoperability requirements definition and test planning, and other relevant factors, JITC provides a recommendation as to whether a system is ready for OT.

**Interoperability Test Certification.** DoDD 4630.5 and CJCSI 6212.01 mandate Interoperability Test Certification for all National Security Systems (NSS) and Information Technology (IT) systems. JITC's role as DoD's sole agent for Interoperability System Test Certification is to ensure that effective information interoperability exists among interfacing NSS and IT systems. JITC interoperability certification ensures that a system meets user requirements for joint and combined interoperability. Interoperability allows people, procedures, and equipment to operate together effectively and efficiently.

Certification relies on:

- JITC review of CINCs, Services, and Agencies (C/S/As) test planning documentation.
- Witnessing interoperability-related portions of all tests conducted by C/S/As.
- JITC review of analyses and assessments prepared by C/S/A test organizations (Participating Test Units).
- JITC conduct of joint interoperability certification testing, as necessary.
- Analysis of independently gathered interoperability test data.
- JITC evaluation of test results reported from all sources.

Factors to be considered in the JITC assessment include:

- Conformance to applicable standards as identified in the JTA, other architectures and requirements documents.
- Ability of the system or equipment to interoperate without critical operational impacts, including both degradation of other systems or networks and being degraded by them.
- Ability of systems to exchange information and services among users through standard data elements and formats.
- Ability to interoperate in joint environments without the use of unacceptable workaround procedures or special technical interface devices.
- Ability of systems to interoperate while maintaining system confidentiality, integrity, and availability as defined by Information Assurance requirements.

**Production/Fielding Decision.** JITC certification letters are distributed to the Joint Staff, members of the Military Communications-Electronics Board's (MCEB's) Interoperability Policy and Test Panel (IPTP), the program manager, and other interested parties. Certification letters are also posted on the Joint Interoperability Tool (JIT) website and the system and interface status is entered into the STP. JITC certification is used as a basis for the Joint Staff issuing a System Validation Memorandum. Certification is JITC's assurance that the I-KPPs and top-level IERs (or equivalent interoperability interface requirements) have been met and that the system is ready for joint/combined/coalition use.

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**Life-Cycle Support.** The JITC assesses systems during exercises and operational use through our Warfighter Support Division to determine if changes in DoD policy, JTA architecture, standards or standards profiles, operational concepts or procedures, or interfacing systems have affected interoperability. Deviations, deficiencies, and uncertified systems are reported to the ITP for appropriate action. In addition, JITC documents the employment of NSS systems that deviate from the MNS/CRD, ORD, or C4ISP. These deviations are also reported to the ITP for consideration as to whether requirements need to be updated and interoperability reevaluated.

The JITC accomplishes its interoperability life-cycle support mission by:

- Conducting exercise evaluations.
- Providing technical assistance (e.g., Hot Line 1-800-LET-JITC).
- Developing Lessons Learned reports.
- Identifying uncertified systems that are not interoperable.
- Providing system performance information to the user.
- Collecting system performance feedback from users.
- Assisting the proponent of non-traditional acquisitions, such as Advanced Concept Technology Demonstrations (ACTDs) and Commercial-Off-The-Shelf (COTS) components, in entering the appropriate stage of the certification process.
- Assisting in scheduling and testing systems that have undergone a major modification or otherwise require recertification.
- Providing a list of fielded uncertified systems to the MCEB ITP.

**Interim Authority to Operate (IATO).** Systems that are identified as not interoperable, but are actively in the process of addressing interoperability problems, are required to submit a request for an IATO to the Joint Staff MCEB ITP for approval before fielding. This process is used when there is an urgent operational need to field a system before interoperability certification, or for the first system to use a particular standard. The IATO applies only to joint interoperability test and certification requirements. Following request of an IATO, the system must enter the certification process and participate in the interoperability testing and evaluation program.

**SUMMARY.** Certification of joint interoperability is a complex process requiring the full cooperation of all players in the acquisition community. Our goal is to provide the interoperability information needed to use systems in the intended operational environment. This includes established interoperability characteristics, as well as the risks relating to the use of untested configurations. JITC strives to ensure the Warfighter has an effective and integrated array of systems and networks that will meet all mission needs.





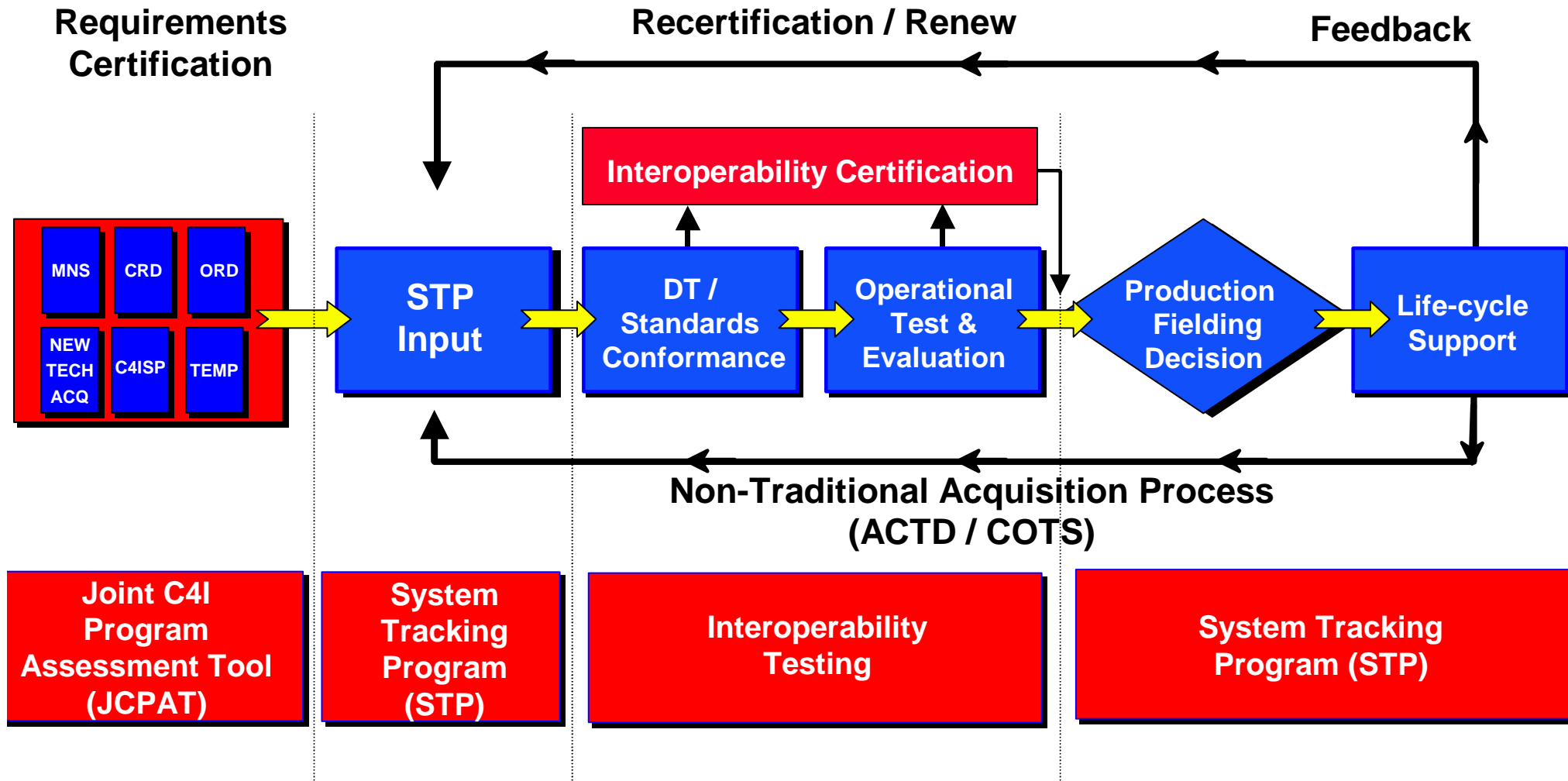


Figure 1. JITC System Life-Cycle Certification Process